

REMARKS

Applicants appreciate the Examiner's allowance of Claims 58-73, 77-80, 84-87, 100-103 and 107-110. Applicants will now address the Examiner's remaining rejections.

Claim Rejections - 35 USC §112

In the Office Action, the Examiner rejects Claims 50-57, 75-76, 82-83, 88-96, 98-99, 105-106 under 35 USC §112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed.

With respect to the limitation of "said heat generating means is covered with said heat absorber" of independent Claims 50 and 54, in order to advance the prosecution of this application, Applicants are amending Claims 50 and 54 to recite "wherein said heat generating means is surrounded by said heat absorber."

This feature is fully supported by, for example, Fig. 1, p. 5 lns. 2-8, and p. 14 lns. 16-22 of the application as filed. In particular, Fig. 1 shows heat absorber 1104 around heat generating means 1102. Hence, the heat generator means 1102 is surrounded by heat absorber 1104. The specification explains that the heat absorber and heat generating means are a combination, that the heat absorber is heated by absorbing radiant light from the heat generating means (e.g. p. 5, lns. 2-8), and that the heat absorber 1104 is formed in the periphery of the heat generator 1102 (e.g. p. 14, lns. 16-22). Fig. 1 shows the structure, with the heat generating means 1102 surrounded by heat absorber 1104, for accomplishing the above. Hence, this feature of amended independent Claims 50 and 54 is clearly supported by the application as filed and is not new matter. Accordingly, it is

respectfully submitted that the rejection of independent Claims 50 and 54 and the claims dependent thereon under 35 USC §112 be withdrawn.

With regard to the limitation of “making the gas flow through pores of an orifice plate over the substrate” of Claims 88-94, in order to advance the prosecution of this application, Applicants are amending Claims 88-94 to recite “making the gas flow through openings of an orifice plate over the substrate.”

Applicants believe that the recitation of “pores” in the specification was the result of a translational error and that the better term and translation would be “openings.” Applicants have reviewed the original Japanese document and the original meaning of “pores” therein is “tiny (or minute) openings.” However, as the dictionary meaning of a “pore” is “a minute opening...one by which matter passes through a membrane (see attached), it is believed that “pore” was the term adopted by the translator. Accordingly, Applicants are amending the claims to recite “openings”. Applicants are also amending the specification to clearly recite this feature. This feature is fully supported by, for example, Fig. 1 and p. 15, lns. 2-5 of the application as filed. In particular, the specification explains that orifice plate 1107 is located in order to make gas flow in from a direction perpendicular to the substrate 1102 (e.g. p. 15, lns. 2-5). As shown in Fig. 1, orifice 1107 has openings over substrate 1120 through which gas flows. Hence, this feature of dependent Claims 88-94 is clearly supported by the application as filed and is not new matter. Accordingly, it is respectfully requested that the rejection of dependent Claims 88-94 under 35 USC §112 be withdrawn.

Claim Rejections - 35 USC §103

Claims 46-57, 74-76, 81-83, 88-90, 95-99, 104-106

The Examiner also rejects Claims 46-57, 74-76, 81-83, 88-90, 95-99, 104-106 under 35 USC §103(a) as being unpatentable over Hemsath et al. (US 5,997,286). This rejection is also respectfully traversed.

While Applicants traverse this rejection, in order to advance the prosecution of this application, Applicants are amending independent Claims 46, 50 and 54 to recite that the heat treatment method comprises heating a gas using an absorber and a heat generating means wherein the gas is heated by an absorber which is heated by a heat generating means.

This feature is not disclosed or suggested by Hemsath.

Further, the Examiner contends that in Hemsath, “[a] semiconductor film is taught in col. 2, lines 23-27 as well as a orifice plate (col. 9, lines 17-54).” Applicants respectfully disagree. While col. 9, lines 17-54 discuss bypass channels, there appears to be no disclosure or suggestion of an orifice plate.

Therefore, for at least the above-stated reasons, the rejected claims are clearly patentable over Hemsath. Hence, it is respectfully requested that this rejection be withdrawn.

Claims 46-57, 74-76, 81-83, 88-90, 95-99, 104-105

The Examiner also rejects Claims 46-57, 74-76, 81-83, 88-90, 95-99, 104-105 under 35 USC §103(a) as being unpatentable over Ushikawa (US 5,378,283). This rejection is also respectfully traversed.

The invention of the rejected claims is directed to a heat treatment method including the feature of circulating gas from the downstream side of the reaction chamber, in which the substrate is processed, to the upstream side of the reaction chamber. This is accomplished, for example, by using a connecting pipe (e.g. 1114 in Fig. 1) or another type of apparatus.

In contrast, Ushikawa discloses a method which comprises circulating gas in a load lock chamber 11, in which a substrate is not processed, by using a gas circulating cleaning device. See e.g. col. 3, lns. 50-58 in Ushikawa. Furthermore, the treatment gases in Ushikawa are fed into the process tube through the gas feed pipe 5, which is not connected to the gas circulating cleaning device, and gases in process tube 1 are evacuated through exhaust pipe 4 which is also not connected to the circulating cleaning device. See e.g. Col. 3, lns. 50-68. Hence, the gas circulation in Ushikawa is not directed to the reaction or processing chamber, as in the claimed invention

Therefore, for at least the above-stated reasons, the rejected claims are clearly patentable over Ushikawa. Hence, it is respectfully requested that this rejection be withdrawn.

Conclusion

Accordingly, the present application is in a condition for allowance and should be allowed.

Please charge our Deposit Account No. 50-1039 for any fee due for this amendment.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,

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